Tranquility® Digital Air Handler (TAH)

Air Handler for
Tranquility® Split Series

Installation, Operation &
Maintenance Instructions
97B0101N01
Rev: 11/19/12

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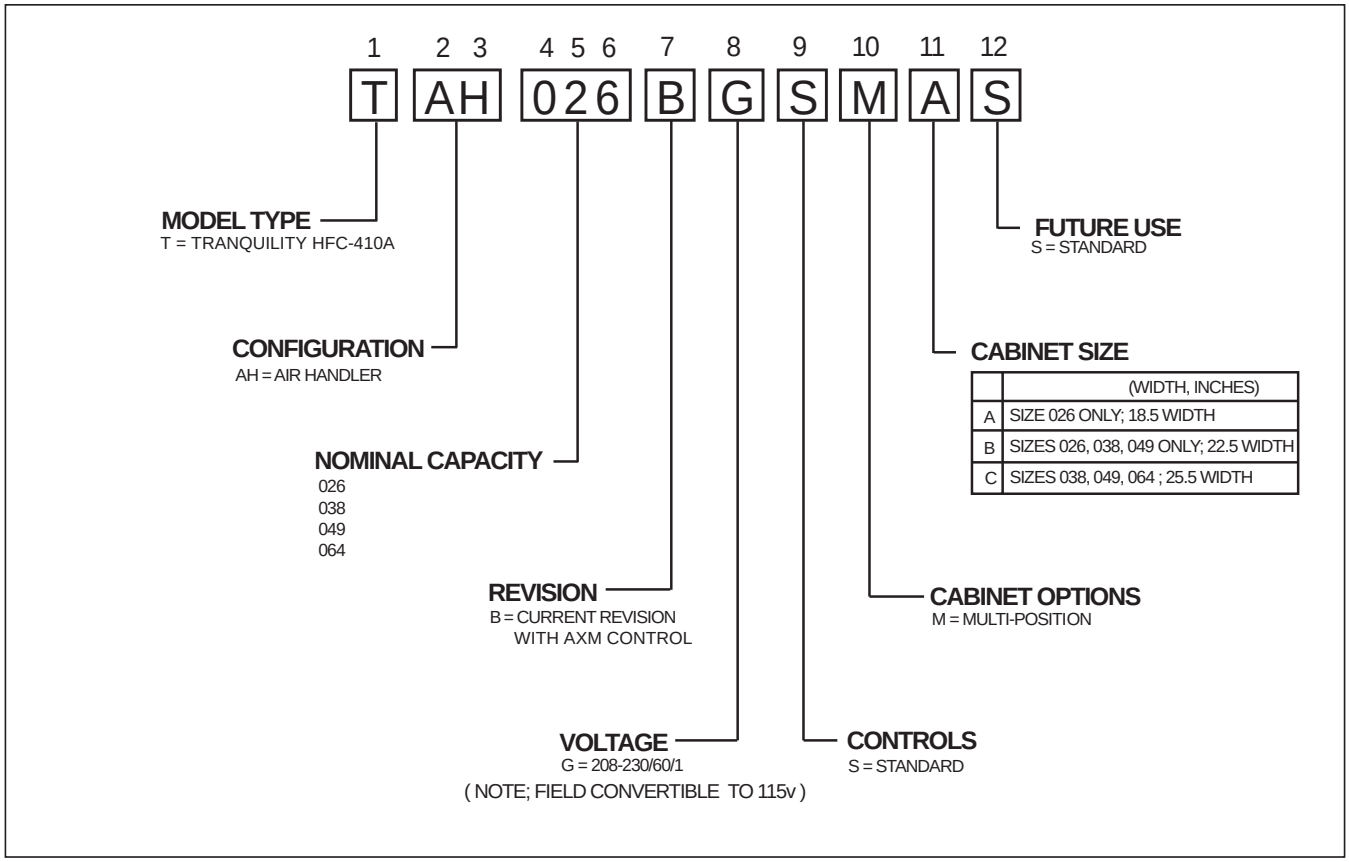
Model Nomenclature



	(WIDTH, INCHES)
A	SIZE 026 ONLY; 18.5 WIDTH
B	SIZES 026, 038, 049 ONLY; 22.5 WIDTH
C	SIZES 038, 049, 064 ; 25.5 WIDTH

General Information

Air Handler Description
ClimateMaster Tranquility® Digital Air Handlers are designed for use with ClimateMaster indoor/outdoor split units and are available for vertical upflow or downflow, and horizontal left or horizontal right airflow.

- New AXM board allows 4-wire connection with communicating split (TEP/TES) and communicating thermostat (ATC). Airflow and accessories can be configured on the thermostat in plain English.
- Air coils are constructed of aluminum fins bonded to internally grooved copper tubing.
- Air coils are tested at the factory with an extensive refrigerant leak check.
- Air coils have sweat refrigerant connections.
- Ideally suited for new installations or add on air conditioning.
- Feature two sets of 3/4" [14.1 mm] F.P.T. Condensate drain connections for ease of connection.
- Air Handlers are A.H.R.I. certified for system application with ClimateMaster indoor and outdoor split units.
- Condensate drain pan is constructed of high grade, heat resistant, corrosion free thermal-set material.
- Bi-Directional airflow eliminates the need to switch any internal components from horizontal left to right.
- Unique drain pan design maximizes application flexibility and condensate removal.

Inspection
Upon receipt of the equipment, carefully check the shipment against the bill of lading. Make sure all units have been received. Inspect the packaging of each unit, and inspect each unit for damage. Insure that the carrier makes proper notation of any shortages or damage on all copies of the freight bill and completes a common carrier inspection report. Concealed damage not discovered during unloading must be reported to the carrier within 15 days of receipt of shipment. If not filed within 15 days, the freight company can deny the claim without recourse. Note: It is the responsibility of the purchaser to file all necessary claims with the carrier. Notify your equipment supplier of all damage within fifteen (15) days of shipment.

Storage
Equipment should be stored in its original packaging in a clean, dry area. Store units in an upright position at all times. Stack units a maximum of 3 units high.

Unit Protection
Cover units on the job site with either the original packaging or an equivalent protective covering. Cap the open ends of pipes stored on the job site. In areas where painting, plastering, and/or spraying has not been completed, all due precautions must be taken to avoid physical damage to the units and contamination by foreign material. Physical damage and contamination may prevent proper start-up and may result in costly equipment clean-up.

Examine all pipes, fittings, and valves before installing any of the system components. Remove any dirt or debris found in or on these components.

Pre-Installation
Installation, Operation, and Maintenance instructions are provided with each unit. Horizontal equipment is designed for installation above false ceiling or in a ceiling plenum. Other unit configurations are typically installed in a mechanical room. The installation site chosen should include adequate service clearance around the unit. Before unit start-up, read all manuals and become familiar with the unit and its operation. Thoroughly check the system before operation.

Prepare units for installation as follows:

1. Compare the electrical data on the unit nameplate with ordering and shipping information to verify that the correct unit has been shipped.
2. Keep the cabinet covered with the original packaging until installation is complete and all plastering, painting, etc. is finished.
3. Verify refrigerant tubing is free of kinks or dents and that it does not touch other unit components.
4. Inspect all electrical connections. Connections must be clean and tight at the terminals.

⚠ WARNING! ⚠

WARNING! These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in property damage, personal injury or death.

⚠ CAUTION! ⚠

CAUTION! DO NOT store or install units in corrosive environments or in locations subject to temperature or humidity extremes. Corrosive conditions and high temperature or humidity can significantly reduce performance, reliability, and service life.

⚠ CAUTION! ⚠

CAUTION! CUT HAZARD - Failure to follow this caution may result in personal injury. Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing.

Safety

The installation of water source heat pump units and all associated components, parts and accessories which make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with ALL applicable codes and regulations.

Replacement Parts

Any replacement part must be the same as or an approved alternate to the original part supplied. The manufacturer will not be responsible for replacement parts not designed to physically fit or operate within the design parameters the original parts were selected for. When ordering replacement parts, it is necessary to order by part number and include the complete model number and serial number from the coil rating plate. (See parts list for unit component part numbers. Parts are available through the local distributor.)

Safety

Warnings, cautions and notices appear throughout this manual. Read these items carefully before attempting any installation, service, or troubleshooting of the equipment.

DANGER: Indicates an immediate hazardous situation, which if not avoided will result in death or serious injury. DANGER labels on unit access panels must be observed.

WARNING: Indicates a potentially hazardous situation, which if not avoided could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation or an unsafe practice, which if not avoided could result in minor or moderate injury or product or property damage.

NOTICE: Notification of installation, operation or maintenance information, which is important, but which is not hazard-related.

⚠ WARNING! ⚠

WARNING! The EarthPure® Application and Service Manual should be read and understood before attempting to service refrigerant circuits with HFC-410A.

⚠ WARNING! ⚠

WARNING! To avoid the release of refrigerant into the atmosphere, the refrigerant circuit of this unit must be serviced only by technicians who meet local, state, and federal proficiency requirements.

⚠ CAUTION! ⚠

CAUTION! It is recommended that an auxiliary secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

⚠ WARNING! ⚠

WARNING! All refrigerant discharged from this unit must be recovered WITHOUT EXCEPTION. Technicians must follow industry accepted guidelines and all local, state, and federal statutes for the recovery and disposal of refrigerants. To avoid leakage of compressor oil, refrigerant lines of the compressor must be sealed after it is removed.

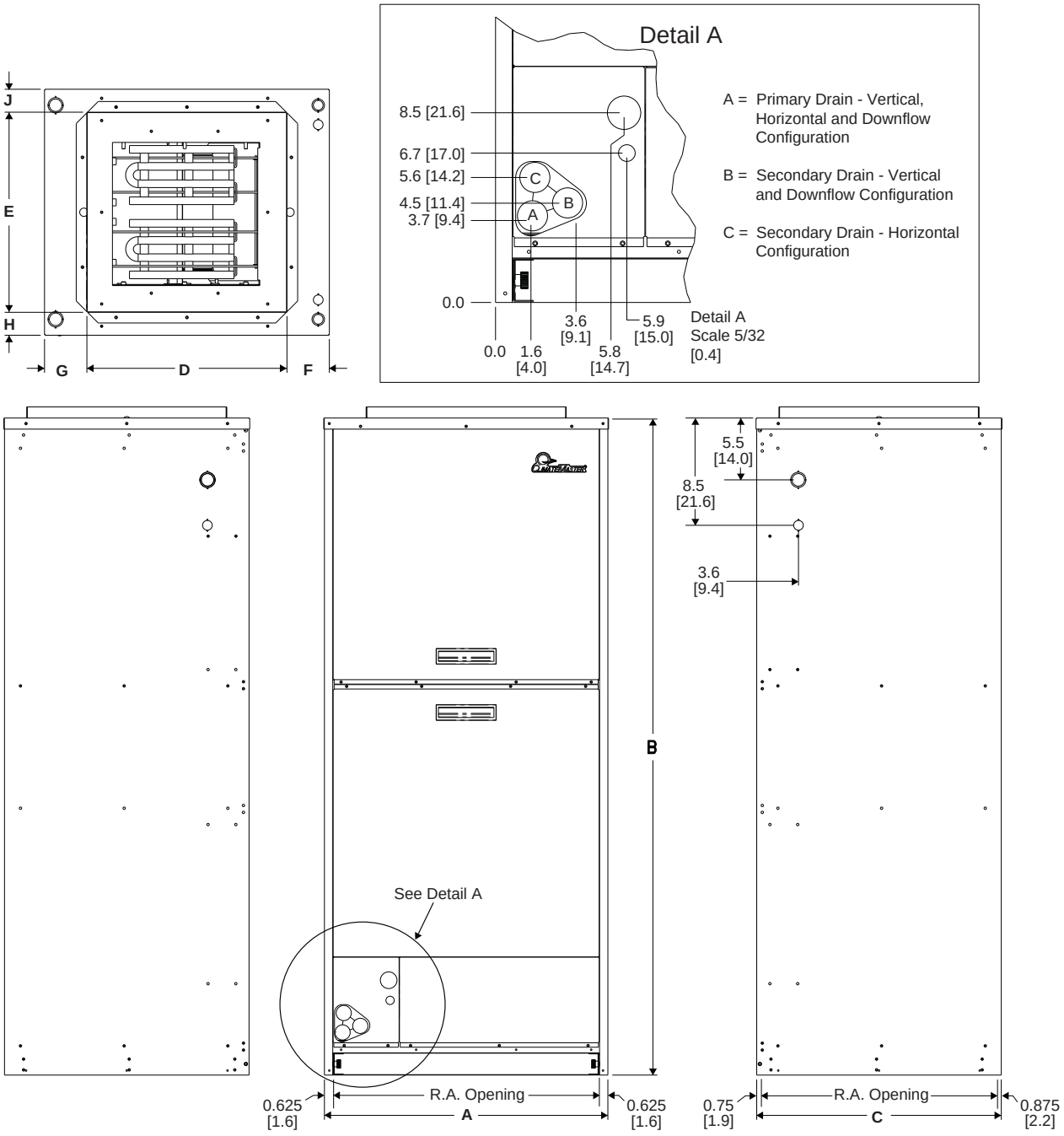
⚠ CAUTION! ⚠

CAUTION! To avoid equipment damage, DO NOT use these units as a source of heating or cooling during the construction process. The mechanical components and filters will quickly become clogged with construction dirt and debris, which may cause system damage.

Unit Physical Data

Model	026-A	026-B	038-B	038-C	049-B	049-C	064-C
Emerson ECM Fan Motor & Blower in. [cm]							
Liquid I.D.	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]
Suction I.D.	3/4 [1.9]	3/4 [1.9]	7/8 [2.22]	7/8 [2.22]	7/8 [2.22]	7/8 [2.22]	7/8 [2.22]
Fan Motor Type/Speeds	ECM Variable						
Fan Motor (hp)	1/2				1		
Blower Wheel Size (Dia x W) in. [mm]	9 x 7 [229 x 178]		12 x 10 [305 x 254]				
Air Coil Dimensions (H x W) in. [mm]	3 - 2 Row 14 x 17 [356 x 432]		3 - 2 Row 24 x 17 [610 x 432]				3 - 3 Row 24x17 [610 x 432]
Filter Standard - 1” [25mm] Throwaway	16 x 20 [406 x 508]	20 x 20 [508 x 508]		20 x 24 [508 x 610]	20 x 20 [508 x 508]	20 x 24 [508 x 610]	
Weight - Operating lbs. [kg]	80 [36]	163 [74]	173 [78]	181 [82]	180 [82]	188 [85]	198 [90]
Weight - Packaged lbs. [kg]	96 [44]	179 [81]	198 [90]	206 [93]	218 [99]	226 [103]	236 [107]

Unit Dimensional Data



Cabinet Size		Overall Cabinet			1	2	3	4	5	6
		A Width	B Height	C Depth	D	E	F	G	H	J
A - Cabinet	in.	18.5	44.0	22.0	14.0	14.0	2.3	2.3	4.1	4.1
	cm.	47.0	111.8	55.9	35.6	35.5	5.8	5.8	10.3	10.3
B - Cabinet	in.	22.0	55.0	22.0	18.0	18.0	2.1	2.1	2.1	2.1
	cm.	55.9	139.7	55.9	45.7	45.7	5.2	5.2	5.2	5.2
C - Cabinet	in.	25.5	59.0	22.0	18.0	18.0	3.8	3.8	2.1	2.1
	cm.	64.8	149.9	55.9	45.7	45.7	9.9	9.9	5.2	5.2

Installation

The Tranquility Air Handlers are designed for upflow, horizontal, and downflow applications. The coils have a dry nitrogen holding charge and are equipped with brazing stub refrigerant connections for easy installation. Both models come equipped with a factory installed TXV.

The installer should read the installation manual supplied with the compressor section for refrigerant line set sizing, connection procedure, and other important information pertaining to the system installation.

The installer should:
1. Where precise forming of refrigerant lines is required, a copper tubing bender is recommended for small diameter tubing. One should avoid sharp bends and contact of the refrigerant lines with metal surfaces.
2. Refrigerant lines should be protected where they pass through the raw edges of holes.
3. Air Handler must be level for proper condensate drainage.
4. Seal the openings into the cabinet to reduce risk of condensate blow off from the coil.

Air Handler Installation

⚠ WARNING! ⚠

WARNING! Electric furnaces may be connected to more than one supply circuit.

Charging the System
TAH Air Handlers are designed to match TEP/TES split units. For correct charging, please refer to the Compressor Section IOM.

Upflow Installation
1. Position unit on plenum box or other suitable foundation. Provide a minimum height for proper unrestricted airflow based on CFM requirement for each unit size.
2. If a return air duct is connected to the air handler, it must be the same dimensions as shown in the outline drawing in Figure 2.
3. Plenum box and unit should be isolated from the foundation using a suitable isolating material.
4. Openings where field wiring enters the cabinet must be completely sealed. Location of power entry is shown on the outline drawing.
5. After ductwork connections are made, seal airtight and per local codes.

Downflow Installation
1. Position unit on plenum box or other suitable foundation. Provide a minimum height for proper unrestricted airflow based on CFM requirement for each unit size.
2. If a return air duct is connected to the air handler, it must be the same dimensions as shown in the outline drawing in Figure 2.
3. Plenum box and unit should be isolated from the foundation using a suitable isolating material.
4. **Openings where field wiring enters the cabinet must be completely sealed.** Location of power entry is shown on the outline drawing.
5. After ductwork connections are made, seal airtight and per local codes.
6. The unit is then placed with the blower side down and the coil is replaced on the coil channel supports with the drain connections at the bottom. The unit is now in downflow position with front access.
   Position the ECM wire harness connection at the 4 to 8 o'clock position to prevent condensation from entering motor controller.
7. If a return duct is connected to the air handler, it must be the same dimensions as the return opening.
8. After ductwork connections are made, seal airtight and per local codes.

Horizontal Right Installation
For maximum efficiency and customer ease of filter maintenance, it is recommended that a properly sized remote filter grille be installed for horizontal applications. Airflow should not exceed the face velocity of the filter being used. **The factory installed filter should then be removed from the unit.**
1. To convert the unit to horizontal right, front access, slide the coil out on the coil channel supports and rotate the complete coil 180 degrees.
2. The coil is then inserted back into the cabinet on the opposite side coil channel supports. The unit is now horizontal right with front access.
   Position the ECM wire harness connection at the 4 to 8 o'clock position to prevent condensation from entering motor controller.
3. If the unit is suspended, it must be supported from the bottom near both ends as well as the middle to prevent sagging. The service access must remain unobstructed. If the unit is supported along the length of the front and back with rails, the air handler only needs to be suspended at both ends. See Figure 1.
   If the unit is not suspended it must be supported as mentioned above and isolated carefully to prevent sound transmission. Vibration isolators (purchased locally) must be placed under the unit.
4. It is always recommended that an auxiliary drain pan be installed under a horizontal air handler (See Condensate Piping) to prevent possible damage to ceilings.
5. Isolate the auxiliary drain pan from the unit or from the structure.
6. Connect the auxiliary drain line to a separate drain line (no trap is needed in this line) and terminate according to national and local codes.
7. If a return duct is connected to the air handler, it must be the same dimensions as the return opening shown in the outline drawing on Figure 2.
8. Openings where field wiring enters the cabinet must be completely sealed.
9. After ductwork connections are made, seal airtight and per local codes.

Installation

Horizontal Left Installation

1. **For maximum efficiency** and customer ease of filter maintenance, it is recommended that a properly sized remote filter grille be installed for horizontal applications. Airflow should not exceed the face velocity of the filter being used. **The factory installed filter should then be removed from the unit.**
2. Unit is shipped from the factory in the upflow or horizontal left configuration. Unit conversion is not required. Conversion is required: Rotate motor to ensure connection at the 4 to 8 o'clock position.
3. If the unit is suspended, it must be supported from the bottom near both ends as well as the middle to prevent sagging. The service access must remain unobstructed. If the unit is supported along the length of the front and back, the air handler only needs to be suspended at both ends. See Figure 1.
4. If the unit is not suspended it must be supported as mentioned above and isolated carefully to prevent sound transmission. Vibration isolators (purchased locally) must be placed under the unit.
5. It is always recommended that an auxiliary drain pan be installed under a horizontal air handler (See Condensate Drain Piping) to prevent possible damage to ceilings.
6. Isolate the auxiliary drain pan from the unit or from the structure.
7. Connect the auxiliary drain line to a separate drain line (no trap is needed in this line) and terminate according to national and local codes.
8. If a return duct is connected to the air handler, it must be the same dimensions as the return opening shown in the outline drawing on Figure 2.
9. **Openings where field wiring enters the cabinet must be completely sealed.** Location of power entry is shown on the outline drawing.
10. After ductwork connections are made, seal airtight and per local codes.

Duct Connections

The supply and return air ducts should be connected to the unit with flame retardant duct connectors.

NOTE: No sheetmetal screws may be used to attach return ductwork on the side.

NOTE: Any duct board return connection can be made to the sides of the unit using tape or mastic.

Figure 1: Mounting Installation Options

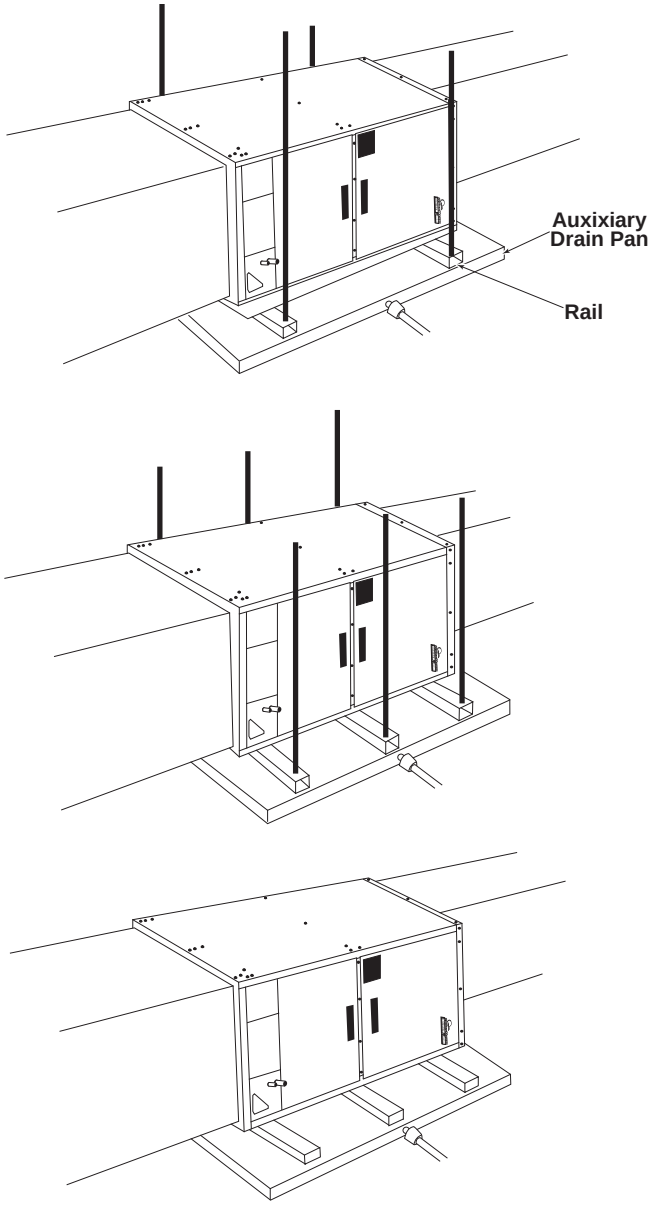
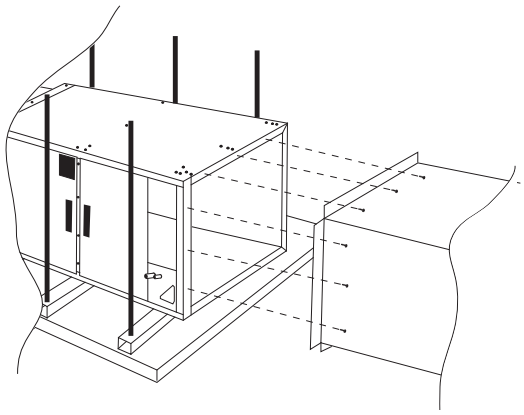


Figure 2: Flange Attachment

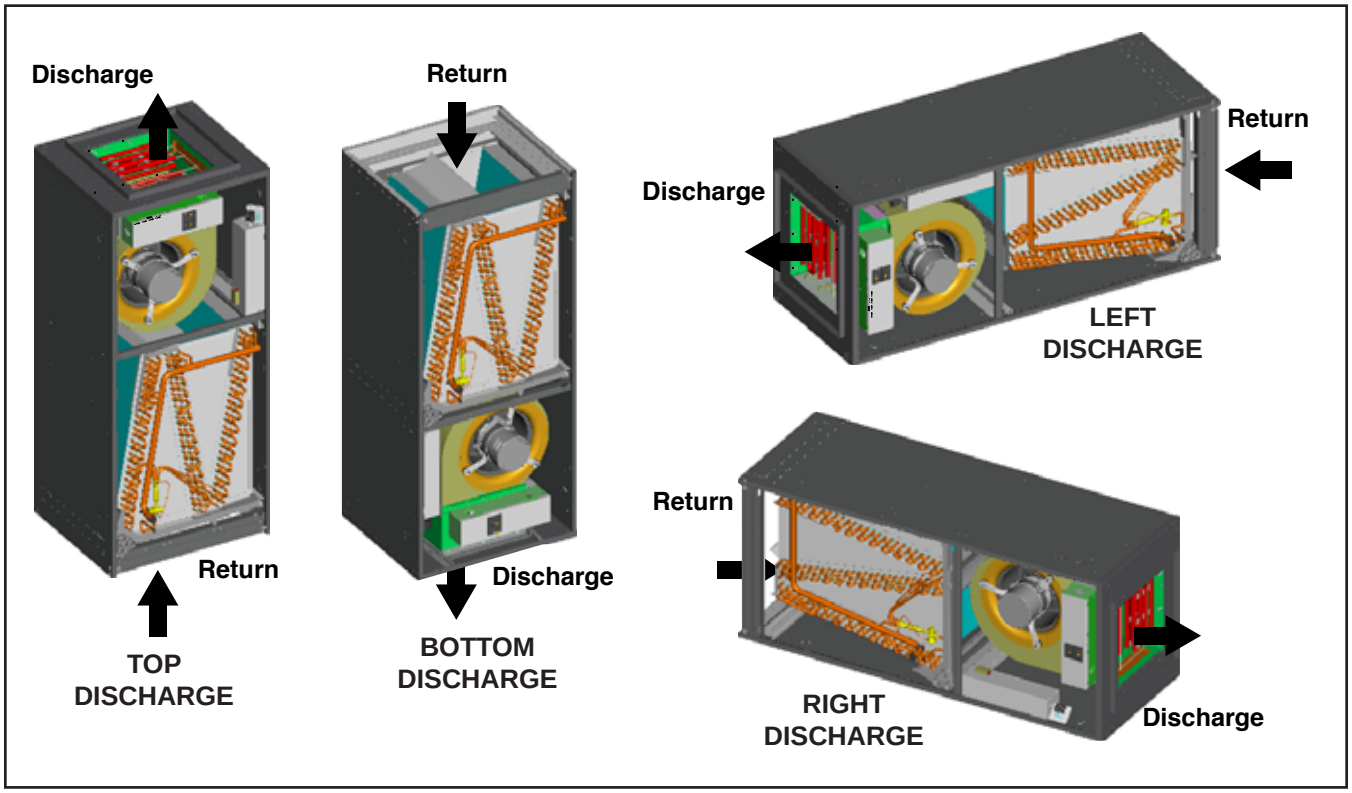


Installation

Applications
Tranquility Air Handlers can be applied in upflow, downflow, horizontal right and horizontal left applications without modifications. For horizontal applications, installation of an auxiliary/secondary drain pan is required.

⚠ CAUTION! ⚠

CAUTION! For horizontal applications, the horizontal drain pan must be located under the indoor coil. Failure to place the pan under the coil can result in property damage.



TAH 1" to 2" Filter Rack Conversion
The unit is shipped with1" filter rack from the factory. The conversion process is assumed that the unit is in upflow configuration.

1. Place unit on a flat surface. Remove 2 knurled thumb knobs that secure the filter rack door at the bottom of the unit.
2. Remove 3 screws that secure the lower filter tracks on each side of the unit.
3. Lift and rotate the filter tracks upside down and reinstall filter tracks and screws back.
4. Replace the filter rack door and the 2 knurled thumb knobs.

Installation

⚠ CAUTION! ⚠

CAUTION! HFC-410A systems operate at higher pressures than R-22 systems. Be certain that service equipment (gauges, tools, etc.) is rated for HFC-410A. Some R-22 service equipment may not be acceptable.

⚠ CAUTION! ⚠

CAUTION! Installation of a factory supplied liquid line bi-directional filter drier is required. Never install a suction line filter in the liquid line.

Line Set Installation
Figure 5 illustrates a typical installations of an air handler or cased coil matched to an indoor compressor section. Table A shows typical line-set diameters at various lengths. Lineset lengths should be kept to a minimum and should always be installed with care to avoid kinking. Line sets over 60 feet [18 meters] long are not recommended due to potential oil transport problems and excessive pressure drop. If the line set is kinked or distorted, and it cannot be formed back into its original shape, the damaged portion of the line should be replaced. A restricted line set will effect the performance of the system.

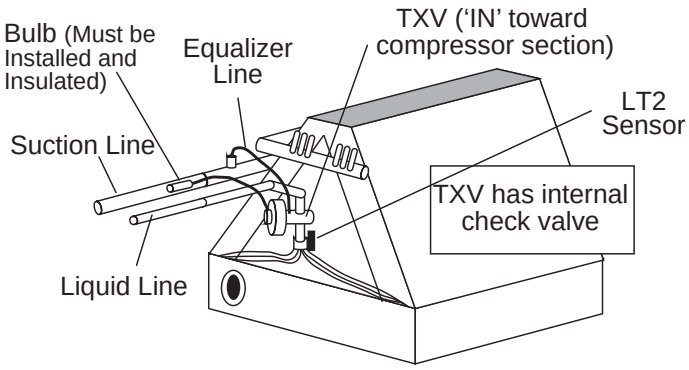
All brazing should be performed using nitrogen circulating at 2-3 psi [13.8-20.7 kPa] to prevent oxidation inside the tubing. All linesets should be insulated with a minimum of 1/2" [13mm] thick closed cell insulation. All insulation tubing should be sealed using a UV resistant paint or covering to prevent deterioration from sunlight.

See compressor section IOM for refrigerant charge information.

When passing refrigerant lines through a wall, seal opening with silicon-based caulk. Avoid direct contact with water pipes, duct work, floor joists, wall studs, floors or other structural components that could transmit compressor vibration. Do not suspend refrigerant tubing from joists with rigid straps. Do not attach line set to the wall. When necessary, use hanger straps with isolation sleeves to minimize transmission of line set vibration to the structure.

Installing the Indoor Coil and Lineset
Figure 3 shows the installation of the lineset and TXV to a typical indoor coil. Braze the copper line set to the coil. Nitrogen should be circulated through the system at 2-3 psi **[13.8-20.7 kPa]** to prevent oxidation inside the refrigerant tubing. Use a low silver phos-copper braze alloy on all brazed connections.

Figure 3: Air Coil Connection



Sensing Bulb
IMPORTANT: DO NOT perform any brazing with the TXV bulb attached to any line. After brazing operations have been completed, clamp the TXV bulb securely on the suction line at the 10 or 2 o'clock position with the strap provided in the parts bag. Insulate the TXV sensing bulb and suction line with the provided pressure sensitive insulation (size 4" x 7").
IMPORTANT: TXV sensing bulb should be located on a horizontal section of suction line, just outside of coil box.
IMPORTANT: Always protect TXV from heat when brazing.
IMPORTANT: TXV sensing bulb is shipped unattached. Installer must attach bulb to suction line after brazing and cooling line for proper unit operation.

NOTICE! The air coil should be thoroughly washed with a filming agent, (dishwasher detergent like Cascade) to help condensate drainage. Apply a 20 to 1 solution of detergent and water. Spray both sides of coil, repeat and rinse thoroughly with water. Care should be taken not to overflow drain pan. Wash after connecting condensate line.

Installation

Evacuation and Charging the Unit

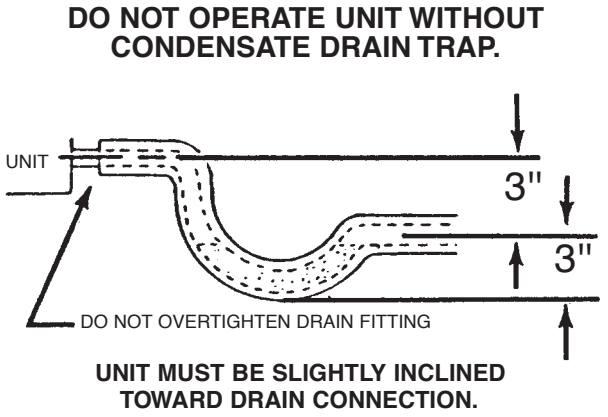
LEAK TESTING - The refrigeration line set must be pressurized and checked for leaks before evacuating and charging the unit. To pressurize the line set, attach refrigerant gauges to the service ports and add an inert gas (nitrogen or dry carbon dioxide) until pressure reaches 60-90 psig [413-620 kPa]. Never use oxygen or acetylene to pressure test. Use a good quality bubble solution to detect leaks on all connections made in the field. Check the service valve ports and stem for leaks. If a leak is found, repair it and repeat the above steps. For safety reasons do not pressurize system above 150 psig [1034 kPa]. System is now ready for evacuation and charging.

Condensate Drain Tubing

Consult local codes or ordinances for specific requirements.
IMPORTANT: When making drain fitting connections to the drain pan, use a thin layer of Teflon paste, silicone or Teflon tape and install hand tight.
IMPORTANT: When making drain fitting connections to drain pan, do not overtighten. Overtightening fittings can split pipe connections on the drain pan.

- Install drain lines so they do not block service access to front of the unit. Minimum clearance of 24 inches is required for filter, coil or blower removal and service access.
- Make sure unit is level or pitched slightly toward primary drain connection so that water will drain completely from the pan (See Figure 4).
- Do not reduce drain line size less than connection size provided on condensate drain pan.
- All drain lines must be pitched downward away from the unit a minimum of 1/8” per foot of line to ensure proper drainage.
- Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or outdoors.
- The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
- Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install a 3 in. trap in the primary drain line as close to the unit as possible. Make sure that the top of the trap is below connection to the drain pan to allow complete drainage of pan (See Figure 4).
- Auxiliary drain line should be run to a place where it will be noticeable if it becomes operational. Occupant should be warned that a problem exists if water should begin running from the auxiliary drain line.
- Plug the unused drain connection with the plugs provided in the parts bag, using a thin layer of Teflon paste, silicone or Teflon tape to form a water tight seal.
- Test condensate drain pan and drain line after installation is complete. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain line fittings, and water is draining from the termination of the primary drain line.

Figure 4: Condensate Drain Trap


DO NOT OPERATE UNIT WITHOUT CONDENSATE DRAIN TRAP.
UNIT
3"
3"
DO NOT OVERTIGHTEN DRAIN FITTING
UNIT MUST BE SLIGHTLY INCLINED TOWARD DRAIN CONNECTION.

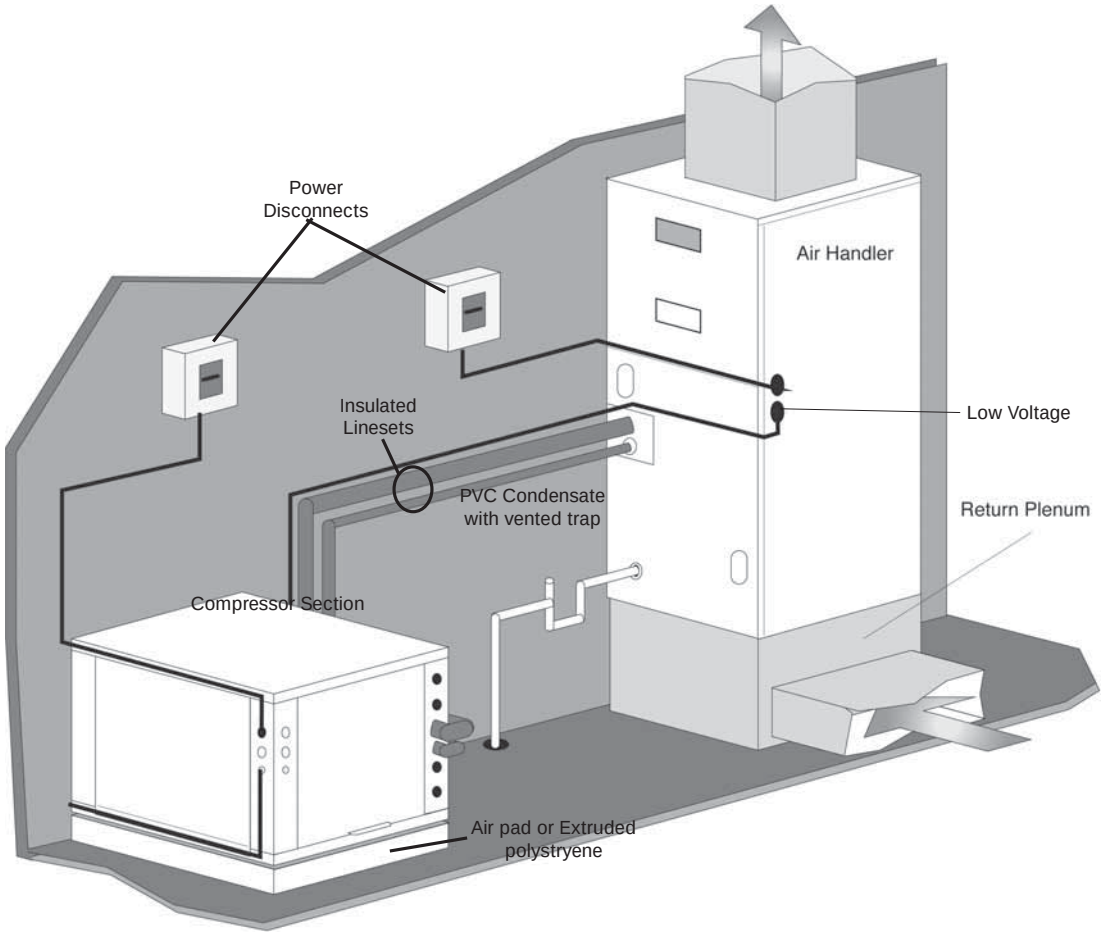
It is always recommended that an auxiliary drain pan be installed under a horizontally installed air handler.

Connect the auxiliary drain line to a separate drain line (no trap is needed in this line) and terminate according to local codes.

NOTE: DO NOT use a torch or flame near the plastic drain pan coupling.

NOTE: DO NOT tighten the drain pipe excessively. Support the condensate piping and traps outside the unit to prevent strain on the drain connection.

Figure 5: Typical Split/Air Handler Installation

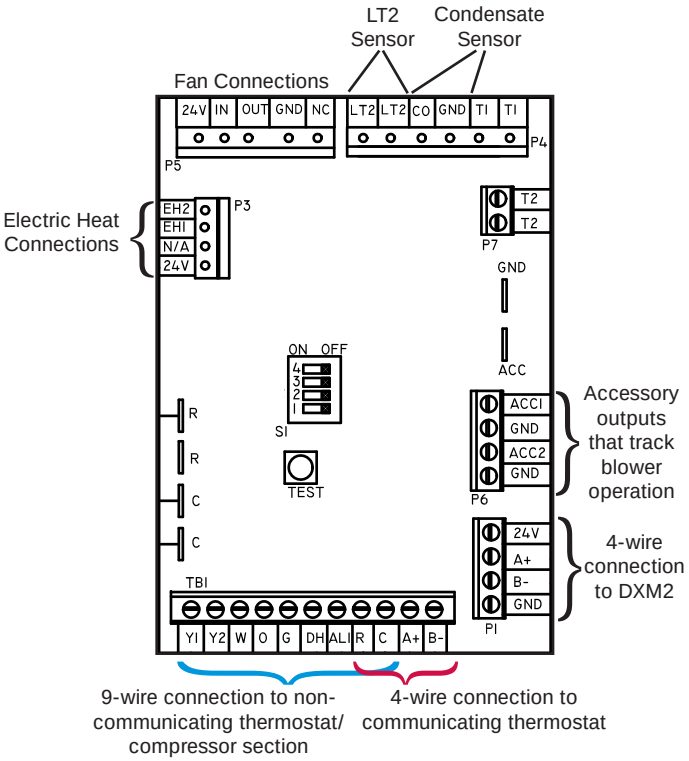


Installation

AXM Control
The Tranquility® Digital Air handler (TAH Revision B) is equipped with a communicating AXM board to allow communication with the communicating compressor section (TES/TEP) and communicating thermostat (ATC).

The AXM control allows either 4-wire connection with Communicating DXM2 board and Communicating ATC Thermostat. It can also be connected to a non-communicating thermostat and compressor section using up to 9-wires (plus additional if functionality requires). Please see Thermostat section for more details.

Figure 5: AXM Connections



Low Air Temperature Sensor Installation
Tranquility® Digital Air Handlers are shipped with LT2 (Low Air Temperature) sensor installed in the Air Handler (Figure 3) and connected to the AXM control. No additional action required (do not clip the VIO wires).

Test Button
The test button puts the AXM into test mode, which bypasses the soft start ramping profile and the blower immediately ramps up to the nominal target speed.

FIELD SELECTABLE INPUTS

DIP SWITCHES

Note: In the following field configuration options, DIP switches should only be moved when power is removed from the DXM2 Control to ensure proper operation.

DIP #2: Dehumidification Mode - Provides selection of normal or Dehumidification Fan Mode. In Dehumidification Mode, the fan speed will be adjusted for Cooling. In Normal Mode, the fan speed will be normal during Cooling.

On = Normal Fan Mode. Off = Dehumidification Mode

Rest of the DIP switches are not used.

ACCESSORY CONNECTION / CONFIGURATION
2 Accessory outputs on AXM board only track blower operation.

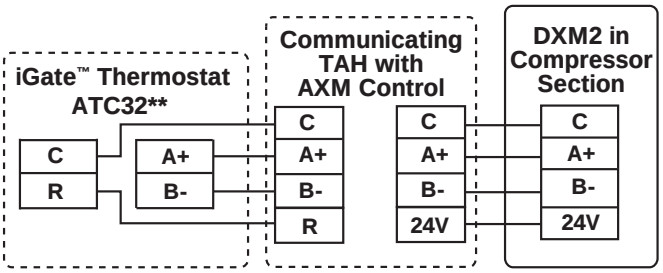
Other accessories are connected to the DXM2 board. Please refer to DXM2 AOM for more details.

Electrical - Thermostat Wiring

Thermostat Installation
The thermostat should be located on an interior wall in a larger room, away from supply duct drafts. DO NOT locate the thermostat in areas subject to sunlight, drafts or on external walls. The wire access hole behind the thermostat may in certain cases need to be sealed to prevent erroneous temperature measurement. Position the thermostat back plate against the wall so that it appears level and so the thermostat wires protrude through the middle of the back plate. Mark the position of the back plate mounting holes and drill holes with a 3/16" (5mm) bit. Install supplied anchors and secure plate to the wall. Thermostat wire must be 18 AWG wire. Wire the appropriate thermostat as shown in Figures 6 and 7 to the low voltage terminal strip on the ECM control board. Practically any heat pump thermostat will work with these units, provided it has the correct number of heating and cooling stages.

4-Wire Connection ATC communicating thermostat and DXM2 Communicating control in Tranquility® Digital Splits
AXM control in Tranquility® Digital Air Handler allows 4-wire connection with Communicating DXM2 board and Communicating ATC Thermostat.

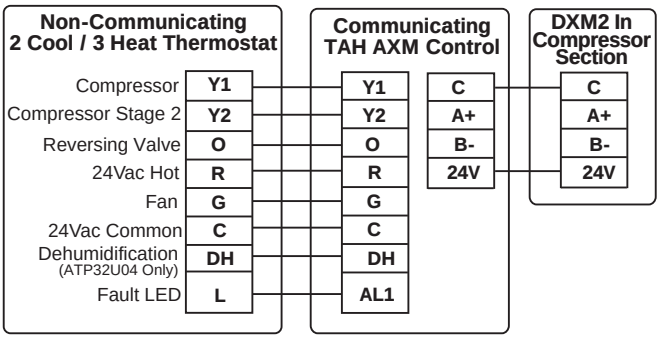
Figure 6: 4-Wire Connection to ATC communicating thermostat, AXM Communicating control and Tranquility® Digital Splits



Thermostat Connections
C 24V Common for Control Circuit
R 24V Supply for Control Circuit
A+ Communications (Positive)
B – Communications (Negative)

Connection to Non-Communicating thermostat, AXM communicating control in Tranquility® Digital Air Handler and Tranquility® Digital Splits

Figure 7: Connection to Non-Communicating thermostat and AXM communicating control in Tranquility® Digital Air Handler



Thermostat Connections
C 24V Common for Control Circuit
R 24V Supply for Control Circuit
A+ Communications (Positive)
B – Communications (Negative)

ECM Blower Control

The ECM fan is controlled directly by the DXM2/AXM control board that converts thermostat inputs and CFM settings to signals used by the ECM motor controller. To take full advantage of the ECM motor features, an iGate™ communicating multi-stage thermostat should be used (ATC32U**).

The AXM control maintains a selectable operating airflow [CFM] for each heat pump operating mode. For each operating mode there are maximum and minimum airflow limits. See the ECM Blower Performance tables for the maximum, minimum, and default operating airflows.

Airflow levels are selected using the configuration menus of a communicating thermostat (ATC32U**) or diagnostic tool (ACDU**). The configuration menus allow the installer to independently select and adjust the operating airflow for each of the operating modes. Air flow can be selected in 25 CFM increments within the minimum and maximum limits shown in Table 8. The blower operating modes include:

- First Stage Cooling (Y1 & O)
- Second Stage Cooling (Y1, Y2, & O)
- First Stage Cooling in Dehumidification Mode (Y1, O, & Dehumid)
- Second Stage Cooling in Dehumidification Mode (Y1, Y2, O, & Dehumid)
- First Stage Heating (Y1)
- Second Stage Heating (Y1 & Y2)
- Third Stage (Auxiliary) Heating (Y1, Y2, & W)
- Emergency Heating (W with no Y1 or Y2)
- Fan (G with no Y1, Y2, or W)

The ECM motor includes “soft start” and “ramp down” features. The soft start feature is a gentle increase of motor rpm at blower start up. This creates a much quieter blower start cycle.

The ramp down feature allows the blower to slowly decrease rpm to a full stop at the end of each blower cycle. This creates a much quieter end to each blower cycle and adds overall unit efficiency.

The ramp down feature is eliminated during an ESD (Emergency Shut Down) situation. When the DXM2 ESD input is activated, the blower and all other control outputs are immediately de-activated.

The duration of the “ramp down” periods are adjustable from 0 seconds to 255 seconds. This adjustment is available in the Aiflow Selection screen using the communicating thermostat or configuration/diagnostics tool, see Figure 27.

Special Note for AHRI Testing: To achieve rated airflow for AHRI testing purposes, it is necessary to change the CFM settings to rated airflow.

Figure 27: Airflow Configuration Screen on Communicating Thermostat

AIRFLOW SELECTION	CFM
HEAT STAGE 1	600
HEAT STAGE 2	750
AUXILIARY HEAT	850
EMERGENCY HEAT	850
COOL STAGE 1	525
COOL STAGE 2	700
COOL DEHUMID 1	425
COOL DEHUMID 2	550
CONTINUOUS FAN	350
HEAT OFF DELAY	60
COOL OFF DELAY	30
◀ PREVIOUS	NEXT ▶

Blower Performance Data

Table 8:TAH Digital Standard Unit

Airflow in CFM with wet coil and clean air filter

Model	Max ESP (in. wg)	Fan Motor (hp)	Range	Cooling Mode		Dehumid Mode		Heating Mode		Fan Only Mode	Aux/ Emerg Mode
				Stg 2	Stg 1	Stg 2	Stg 1	Stg 2	Stg 1		
TAH 026	1.0	1/2	Default	700	525	550	425	750	600	350	850
			Maximum	1000	800	800	600	1000	850	1000	1000
			Minimum	600	450	550	400	600	450	300	700
TAH 038	0.9	1/2	Default	1050	800	850	650	1100	850	550	1350
			Maximum	1500	1100	1200	900	1500	1100	1500	1500
			Minimum	900	600	825	550	900	600	450	1350
TAH 049	1.0	1	Default	1400	1050	1100	850	1500	1150	700	1500
			Maximum	2000	1500	1600	1200	2000	1500	2000	2000
			Minimum	1200	900	1100	825	1200	900	600	1350
TAH 064	0.7	1	Default	1750	1300	1400	1050	1875	1450	875	1875
			Maximum	2300	1900	2000	1500	2300	1900	2300	2300
			Minimum	1500	1100	1375	1000	1500	1100	750	1500
TAH 072	0.7	1	Default	1900	1450	1650	1250	2000	1650	950	2000
			Maximum	2300	2200	2000	1800	2300	2200	2300	2300
			Minimum	1800	1350	1650	1250	1800	1350	900	1800

Airflow is controlled within 5% up to the Max ESP shown with wet coil

Electrical - Power Wiring

⚠ WARNING! ⚠

WARNING! Electrical shock hazard - Lock unit disconnect switch in open position before servicing unit. Failure to follow this warning could result in property damage, personal injury, or death.

1. These Air Handlers are shipped from the factory wired for 230 volts. The units may be wired for 208 or 115 volts. Follow instructions on unit wiring diagram located on blower housing and in the Service Facts document included with the unit.
2. The selection of wire and fuse sizes should be made according to the Minimum Branch Circuit Ampacity and the Maximum Overcurrent Device listed on the unit nameplate.
3. Field wiring diagrams for electric heaters and unit accessories are shipped with the accessory.
4. Wiring must conform to National and Local codes.
5. Ground unit per local codes with good safety procedures.

NOTE: If air handler is used with or without a heater, the electrical entry hole as well as any other cabinet penetrations must be sealed air-tight.

Wiring Instructions for 115v Conversion from 230 volt

1. Disconnect all power to the unit.
2. Disconnect Transformer primary orange wire from power block T2 and insulate open end of wire. Connect the white lead from transformer primary wire to power block terminal T2. Note: (L2 will be used as Netural)
3. Remove plug in ECM power wiring harness (Fig. 9) and Install 2 pin jumper plug provided in control box (Fig. 10).

NOTE: When supplementary heaters are installed, inspect to insure that all packaging material has been removed.

Table 4: Electric Table (115) 208/230

Model	Fan Motor FLA	Fan Motor HP	Max Fan ESP	Min Circ Amp (120) 208/230	Total Unit FLA	Max Fuse/ HACR (120) 208/230
026	(7.7) 4.3	1/2	0.5	(7.8) 4.9	(7.7) 4.3	(15) 15
038	(7.7) 4.3	1/2	0.5	(7.8) 4.9	(7.7) 4.3	(15) 15
049	(12.8) 7	1	1	(14.4) 8.6	(12.8) 7	(25) 15
064	(12.8) 7	1	1	(14.4) 8.6	(12.8) 7	(25) 15

Dual Rated Voltate: (115) 208/230
Min/Max Voltage: 115: 114/132
Min/Max Voltage: 208/230: 197/254

Figure 9: Remove Harness Plug

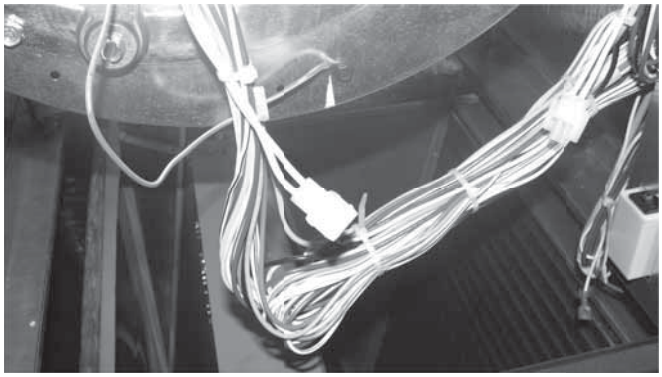
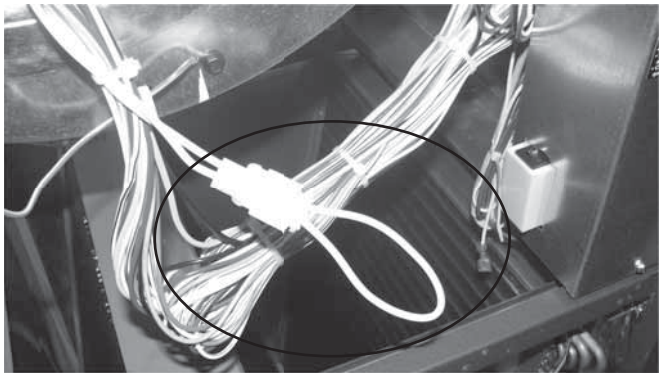


Figure 10: Install Two Pin Jumper Plug



Note: For 115v power only. Damage will occur to motor with 230v power supply if 115v jumper is used.

Electric Heat Installation

Overview

The AG Series Auxiliary Electric Heat mounts internally in upflow (Figure 11) or downflow units and horizontal units. Horizontal units are rated for zero clearance at the unit and 1" clearance for first three feet of duct, vertical units rated for zero clearance for both unit and duct. Downflow units can not be located directly over a discharge register. The discharge plenum must be constructed from non combustible material. The AG electric heat contains a four stage relay control board which activates the elements directly via an internally wired low voltage harness. Low voltage signals (W1 and W2) are staged from the AXM control.

Vertical Upflow or Downflow and Horizontal Installation

1. Disconnect power to the unit
2. Remove blower access panels.
3. Clip wire-tie holding electric heat low voltage 3-wire harness to discharge panel stiffener.
4. Remove blower mounting screws and then drop down blower assembly as shown in Figure 12. Removal of blower wires should not be necessary.
5. Install electric heat in discharge flange where blower assembly has been removed using provided screws as shown In Figure 13.

5.5 For downflow or horizontal right discharge units, the air handler support bracket must be removed to re-install the blower housing assembly. After re-installing the blower housing, re-install the air handler support bracket.

6. Re-install blower assembly, Figure 13, into electric heat assembly using blower mounting screws. Check blower wiring for proper wiring connections.
7. Route the low voltage harness through the provided 'pie' bushing and plug into electric heat control board connector P2 as shown in Figure 18.
8. Install power conduit through unit corner post knockout and attach conduit directly to the electric heat control box.
9. Optional: AG**C kits only. Blower power may be supplied from T3 & T4 CB5 breaker. Refer to wiring diagram 96B0143N01.

Figure 11: Typical air handler installation

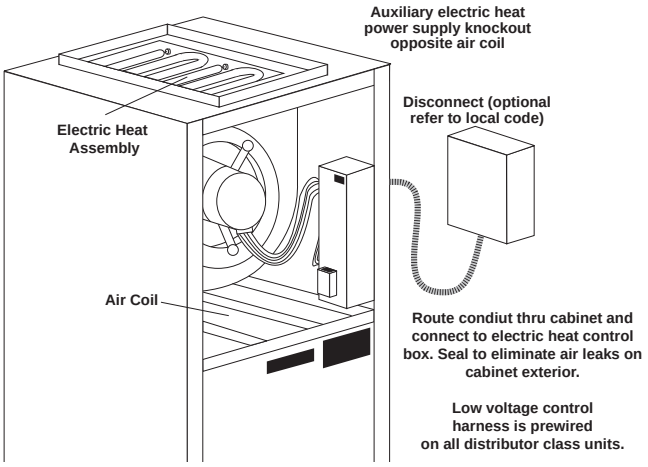

Auxiliary electric heat power supply knockout opposite air coil
Disconnect (optional refer to local code)
Electric Heat Assembly
Air Coil
Route condiut thru cabinet and connect to electric heat control box. Seal to eliminate air leaks on cabinet exterior.
Low voltage control harness is prewired on all distributor class units.

Figure 12: Blower removal

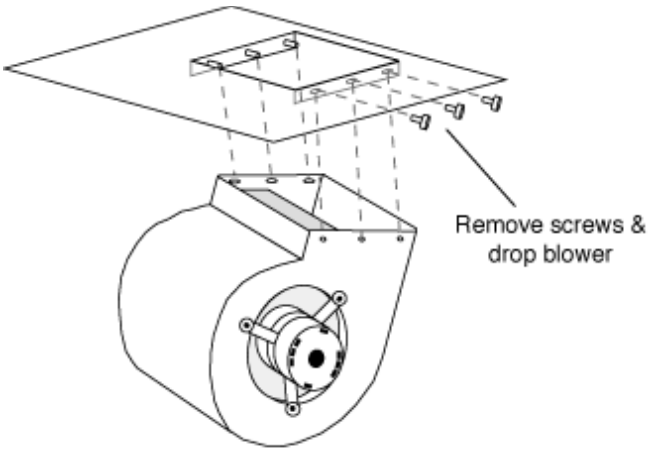
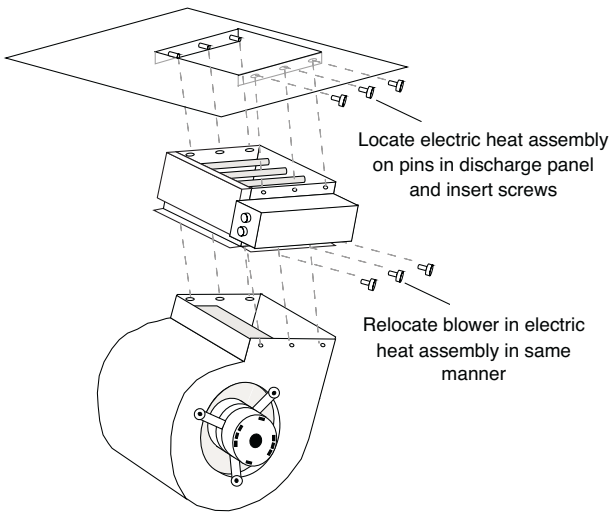


Figure 13: AG electric heat mounting and blower re-installation


Locate electric heat assembly on pins in discharge panel and insert screws
Relocate blower in electric heat assembly in same manner

Electric Heat Wiring

Figure 14: Power Wiring, Dual Circuits, 15 and 20kw

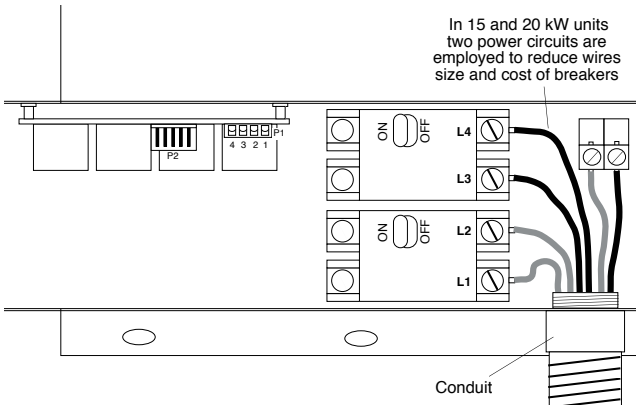


Figure 15: Power Wiring, Single Circuit, 15, 20kw

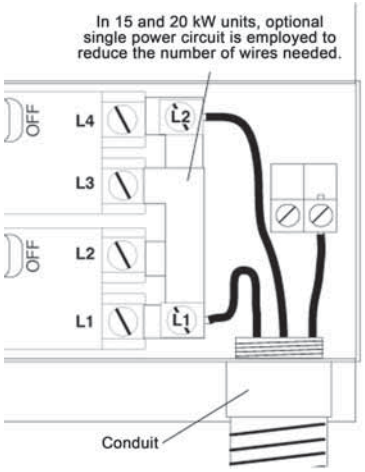
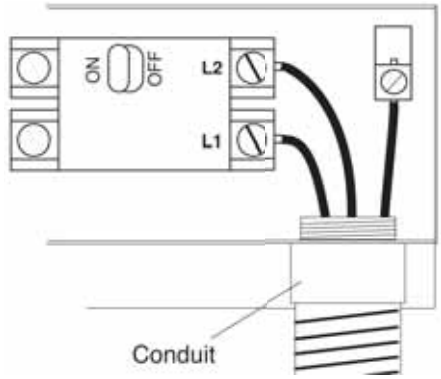


Figure 16: Power Wiring, 4, 5, 8, and 10kw



Wiring and Setup (all models)

1. Install power wiring and connect to power block or circuit breakers. In 12, 15 or 20kW models two power circuits may be used to reduce wiring and breaker costs as in Figure 14. If a single circuit supply is desired, install the optional single circuit accessory kit (P/N 16B0002N02), as shown in Figure 15, that can be obtained from your distributor.
2. Ensure unit airflow setting is above minimum airflow rating for the electric heat model from Table 1.
3. Check staging jumpers for the application. Typically only 5 kW (factory setting on all models except 10kW on 20kW models) is needed for first stage electric (W1) to minimize electric demand. This staging can be adjusted by moving the staging jumpers as shown in Figure 17. Whatever is jumped to P1 pin 1 will be energized on 1st stage of electric heat, and P1-2 will be energized as stage 2 electric heat. See Table C for staging options.
4. Mark the appropriate box of the electric heat model installed on the additional serial plate on the exterior of the unit.
5. Turn on the power to the unit and the auxiliary electric heat.

Auxiliary Electric Heat Start-up

Put thermostat in emergency heat mode in manual mode on ATC/ACD (see figure #) and setpoint to high setting. Unit will require 15-20 seconds before engaging emergency heat mode stage 1 (W1) and then another 15-20 seconds to engage stage 2 (W2) when in 'Test mode'. Verify proper electric heat operation. Exit manual mode for normal operation.

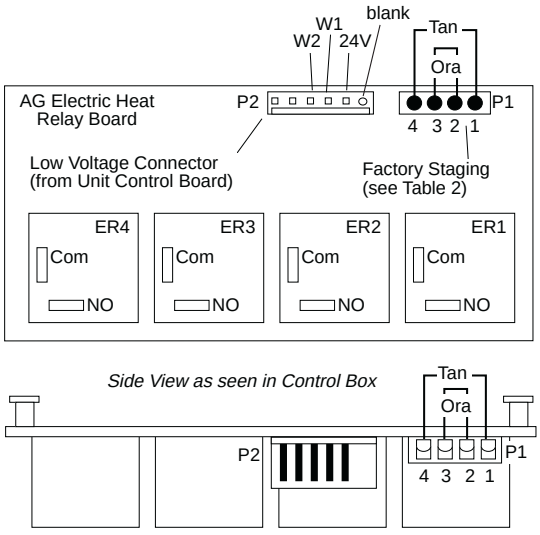
MANUAL OPERATING MODE

Y1	COMM	OUTPUT	OFF
Y2	COMM	OUTPUT	OFF
W	COMM	OUTPUT	OFF
O	COMM	OUTPUT	OFF
G	COMM	OUTPUT	OFF
H	COMM	OUTPUT	OFF
DH	COMM	OUTPUT	OFF
ECM	AIRFLOW		0
PUMP	SPEED		0%
TEST	MODE		OFF

SELECT OPTION ▲▼
◀ PREVIOUS SELECT ■

Figure 17: Staging Jumpers

Staging Example on a 15kW unit W1 (first stage) has 5kW ('ER1' 5kW & 'ER4' 0kW) and W2 (second stage) will have 10kW ('ER2 & 3' 5kW each)



Electric Heat Wiring and Staging Options

Figure 18: Low Voltage Harness Connection

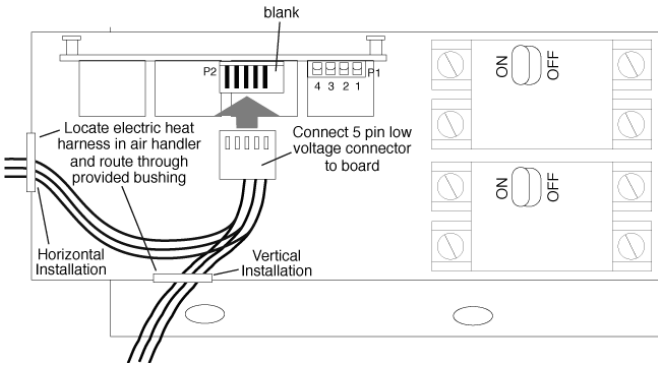


Table 1: AG Electric Heat Ratings

Auxiliary Electric Heat Model	TAH Models			kW Rating		Btuh Rating		Minimum CFM Required
	026	038	049-064	240V	208V	240V	208V	
AGM4C	■			3.8	2.9	13000	9900	500
AGM5C	■			4.8	3.6	16300	12300	500
AGM8C	■			7.6	5.7	25900	19400	650
AGM10C	■			9.6	7.2	32700	24600	650
AGL4C		■	■	3.8	2.9	13000	9900	500
AGL10C		■	■	9.6	7.2	32700	24600	1300
AGL15C		■	■	14.4	10.8	49100	36900	1350
AGL20C			■	19.2	14.4	65500	49200	1350

Black area denotes compatibility
Note: Horizontal units rated for zero clearance unit and 1" clearance for the first three feet of duct,
Vertical units rated for zero clearance for both unit and duct.

Table 2: AG Electric Heat Staging Options

Auxiliary Electric Heat Model	Staging Options	Factory Settings Stage 1	Staging in kW					
			Jumper 1-4, 2-3†		Jumper 1-3, 2-4†		Jumper 1-2-3	
			Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
AGM4C	4	4	4	0	4	0	4	0
AGM5C	5	5	5	0	5	0	5	0
AGM8C	4 or 8	4	4	4	4	4	8	0
AGM10C	5 or 10	5	5	5	5	5	10	0
AGL4C	4	4	4	0	4	0	4	0
AGL10C	5 or 10	5	5	5	5	5	10	0
AGL15C	5, 10 or 15	5	5	10	10	5	15	0
AGL20C	5, 10, 15 or 20	10	10	10	10	10	15	5

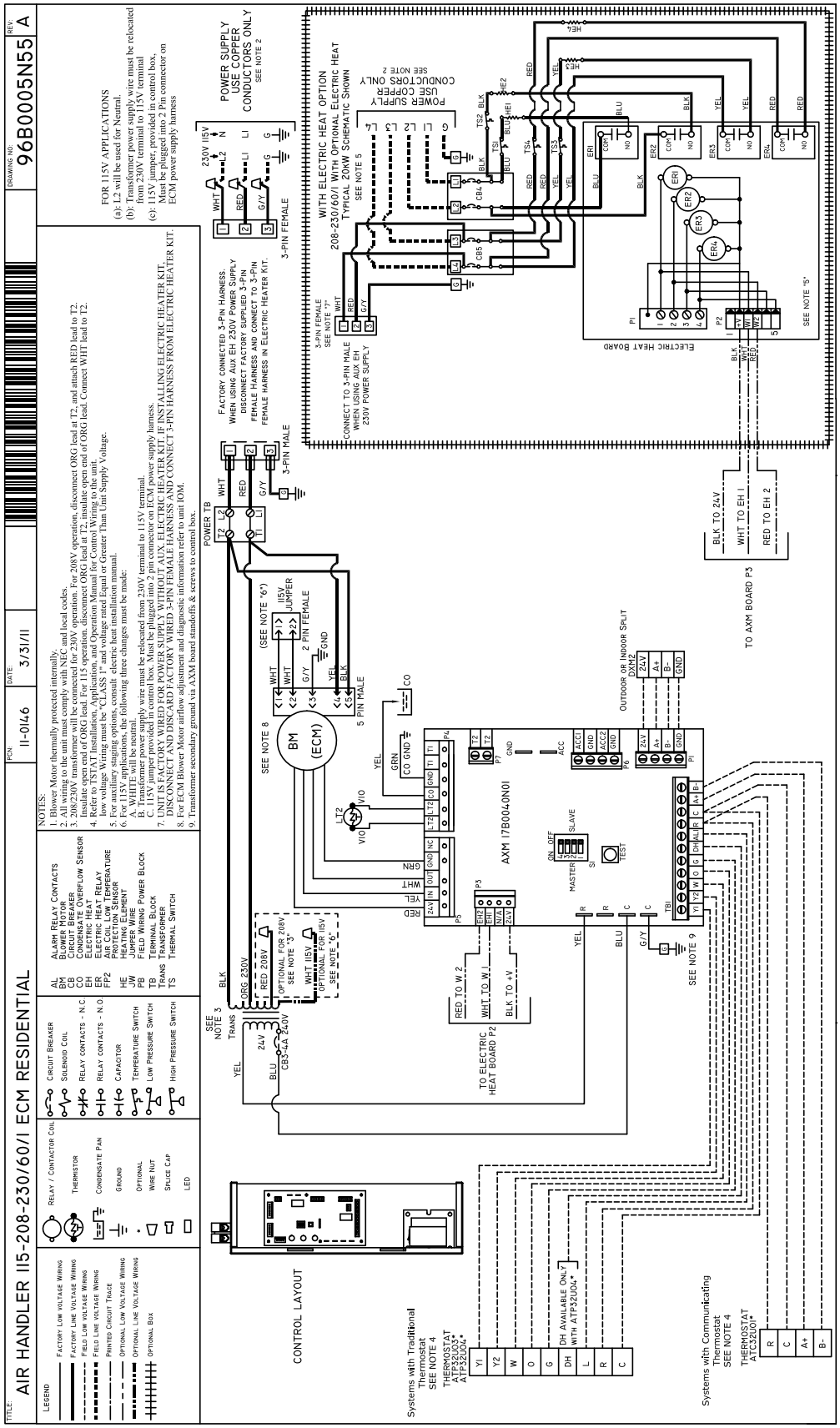
† Factory jumper setting

Table 3: AG Electric Heat Electrical Data

Unit Model	Head Kit Model	Supply	Heater Amps 240	Heater Amps 208	Blower FLA	Minimum Circuit Amps		Maximum Breaker Size	
						240 V	208 V	240 V	208 V
TAH026	AGM4C	SINGLE	15.8	14	4.3	25	23	25	25
	AGM 5C	SINGLE	20	17.3	4.3	30	27	30	30
	AGM 8C	SINGLE	31.7	27.5	4.3	45	40	45	40
	AGM 10C	SINGLE	40	34.7	4.3	55	49	60	50
TAH038	AGL4C	SINGLE	15.8	14	4.3	28.5	26.25	30	30
	AGL10C	SINGLE	40	34.7	4.3	59	52	60	60
	AGL15C	DUAL L1/L2	40	34.7	0	50	43	50	45
		L3/L4	20	17.3	4.3	34	30	35	30
TAH049 and TAH060	AGL4C	SINGLE	15.8	14	7	28.5	26.25	30	30
	AGL10C	SINGLE	40	34.7	7.0	59	52	60	60
	AGL15C	DUAL L1/L2	40	34.7	0.0	50	43	50	45
		L3/L4	20	17.3	7.0	34	30	35	30
	AGL20C	DUAL L1/L2	40	34.7	0.0	50	43	50	45
		L3/L4	40	34.7	7.0	59	52	60	60

All heaters rated single phase 208-240V 60Hz
All models 15kW or larger feature internal circuit breakers
All Fuses UL Class K general purpose

Typical Wiring Diagram - 96B0005N55


TITLE: AIR HANDLER 115-208-230/60/1 ECM RESIDENTIAL
PCN: 11-0146
DATE: 3/31/11
DRAWING NO: 96B0005N55
REV: A
LEGEND
FACTORY LOW VOLTAGE WIRING
FACTORY LINE VOLTAGE WIRING
FIELD LOW VOLTAGE WIRING
FIELD LINE VOLTAGE WIRING
PRINTED CIRCUIT TRACE
OPTIONAL LOW VOLTAGE WIRING
OPTIONAL LINE VOLTAGE WIRING
OPTIONAL BOX
RELAY / CONTACTOR COIL
THERMISTOR
CONDENSATE PAN
GROUND
OPTIONAL WIRE NUT
SPLICE CAP
LED
CIRCUIT BREAKER
SOLENOID COIL
RELAY CONTACTS - N.C
RELAY CONTACTS - N.O.
CAPACITOR
TEMPERATURE SWITCH
LOW PRESSURE SWITCH
HIGH PRESSURE SWITCH
ALARM RELAY CONTACTS
BLOWER MOTOR
CIRCUIT BREAKER
CONDENSATE OVERFLOW SENSOR
ELECTRIC HEAT
ELECTRIC HEAT RELAY
AIR COIL LOW TEMPERATURE PROTECTION SENSOR
HEATING ELEMENT
JUMPER WIRE
FIELD WIRING POWER BLOCK
TERMINAL BLOCK
TRANSFORMER
THERMAL SWITCH
NOTES:
1. Blower Motor thermally protected internally.
2. All wiring to the unit must comply with NEC and local codes.
3. 208/230V transformer will be connected for 230V operation. For 208V operation, disconnect ORG lead at T2, and attach RED lead to T2. Insulate open end of ORG lead. For 115 operation, disconnect ORG lead at T2, insulate open end of ORG lead. Connect WHT lead to T2.
4. Refer to iTSAT Installation, Application, and Operation Manual for Control Wiring to the unit.
5. Low voltage Wiring must be CLASS 1 and routed separately from Line Voltage wiring.
6. For auxiliary staging options, consult electric heat installation manual.
7. For 115V applications, the following three changes must be made:
A. WHITE will be neutral.
B. Transformer power supply wire must be relocated from 230V terminal to 115V terminal.
C. 115V jumper provided in control box. Must be plugged into 2 Pin connector on ECM power supply harness.
8. UNIT IS FACTORY WIRED FOR POWER SUPPLY WITH ELECTRIC HEATER KIT. IF INSTALLING ELECTRIC HEATER KIT, DISCONNECT AND DISCARD FACTORY WIRED 3-PIN FEMALE HARNESS AND CONNECT 3-PIN HARNESS FROM ELECTRIC HEATER KIT.
9. For ECM Blower Motor airflow adjustment and diagnostic information refer to unit IOM.
9. Transformer secondary ground via AXM board standoffs & screws to control box.
FOR 115V APPLICATIONS
(a): L2 will be used for Neutral.
(b): Transformer power supply wire must be relocated from 230V terminal to 115V terminal
(c): 115V jumper, provided in control box. Must be plugged into 2 Pin connector on ECM power supply harness
POWER SUPPLY USE COPPER CONDUCTORS ONLY
SEE NOTE 2
230V 115V
L2 N
L1 L1
G G
3-PIN FEMALE
WITH ELECTRIC HEAT OPTION
208-230/60/1 WITH OPTIONAL ELECTRIC HEAT
TYPICAL 20kW SCHEMATIC SHOWN
SEE NOTE 5
POWER SUPPLY USE COPPER CONDUCTORS ONLY
SEE NOTE 2
L1 L2 L3 L4 G
CONNECT TO 3-PIN MALE WHEN USING AUX EH 230V POWER SUPPLY
3-PIN FEMALE SEE NOTE "7"
FACTORY CONNECTED 3-PIN HARNESS WHEN USING AUX EH 230V POWER SUPPLY ACCESSORY. CONNECT 3-PIN FEMALE HARNESS AND CONNECT TO 3-PIN FEMALE HARNESS IN ELECTRIC HEATER KIT.
3-PIN MALE
ELECTRIC HEAT BOARD
SEE NOTE "5"
BLK TO 24V
WHT TO EH 1
RED TO EH 2
TO AXM BOARD P3
POWER TB
T2 L2
T1 L1
SEE NOTE 8
(SEE NOTE "6")
115V JUMPER
2 PIN FEMALE
5 PIN MALE
BM (ECM)
CO
LT2
AXM 17B0040N01
OUTDOOR OR INDOOR SPLIT
DXM2
TO ELECTRIC HEAT BOARD P2
RED TO W 2
WHT TO W 1
BLK TO +V
SEE NOTE 9
CONTROL LAYOUT
Systems with Traditional Thermostat SEE NOTE 4
THERMOSTAT ATP32U01* ATP32U04*
Y1 Y2 W O G DH L R C
DH AVAILABLE ONLY WITH ATP32U04*
Systems with Communicating Thermostat SEE NOTE 4
THERMOSTAT ATC32U01*
R C A+ B-

Unit & System Checkout

⚠ WARNING! ⚠

WARNING! Electrical shock hazard - Lock unit disconnect switch in open position before servicing unit. Failure to follow this warning could result in property damage, personal injury, or death.

After installation has been completed, it is recommended that the Air Handler be checked against the following checklist:

CHECKOUT PROCEDURE

- ❑ **Power:** Make sure power is “OFF” at power disconnect switch.
- ❑ **Field Wiring:** Check all field wiring for tight connections. See that grounding of unit is in accord with code
- ❑ **Unit Suspension:** Make sure unit suspension (if used) is secure and that there are no tools or loose debris in, around or on top of the unit.
- ❑ **Ducts:** Check all duct outlets; they must be open and unrestricted.
- ❑ **Drain Lines:** Check drain lines and be sure all joints are tight.
- ❑ **Drain Pan:** Make sure secondary drain pan is installed.
- ❑ **Power Supply:** Check power supply for correct requirements per unit nameplate.
- ❑ **Filters:** Check filters for proper size. Inform owner of proper procedure for removal and reinstallation.
- ❑ **Operation:** Energize the system and carefully observe its operation; make any necessary adjustment.
- ❑ **Procedure:** Instruct owner, engineer (if possible) on proper operating procedure and leave Use and Care Manual with owner.

MAINTENANCE

⚠ WARNING! ⚠

WARNING! These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in property damage, personal injury or death.

For continuing high performance and to minimize possible equipment failure, it is essential that annual maintenance be performed on this equipment. Consult your local dealer as to the availability of a maintenance contract.

Air Filter

Check the system filter every ninety days or as often as found to be necessary and if obstructed, clean or replace at once.

IMPORTANT: Do not operate the system without a filter in place.

Indoor Coil - Drain Pipe - Drain Line

Inspect the indoor coil once each year for cleanliness and clean as necessary. In some cases, it may be necessary to remove the filter and check the return side of the coil with a mirror and flashlight.

IMPORTANT: Do not use caustic household drain cleaners or bleach in the condensate pan or near the indoor coil. Drain cleaners will quickly damage the indoor coil.

Warranty

CLIMATEMASTER®
Geothermal Heat Pump Systems

CLIMATE MASTER, INC.
LIMITED EXPRESS WARRANTY/LIMITATION OF REMEDIES AND LIABILITY FOR RESIDENTIAL CLASS PRODUCTS WITH LABOR ALLOWANCE

It is expressly understood that unless a statement is specifically identified as a warranty, statements made by Climate Master, Inc. a Delaware corporation, ("CM") or its representatives, relating to CM's products, whether oral, written or contained in any sales literature, catalog or agreement, are not express warranties and do not form a part of the basis of the bargain, but are merely CM's opinion or commendation of CM's products. **EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXPRESS WARRANTY AS TO ANY OF CM'S PRODUCTS. CM MAKES NO WARRANTY AGAINST LATENT DEFECTS. CM MAKES NO WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.**

GRANT OF LIMITED EXPRESS WARRANTY

CM warrants its Residential Class products, purchased and retained in the United States of America and Canada, to be free from defects in material and workmanship under normal use and maintenance as follows: (1) Air conditioning, heating and/or heat pump units built or sold by CM ("CM Units") for ten (10) years from the Warranty Inception Date (as defined below); (2) Thermostats, auxiliary electric heaters and geothermal pumping modules built or sold by CM, when installed with CM Units, for ten (10) years from the Warranty Inception Date (as defined below); and (3) Other accessories and parts built or sold by CM, when installed with CM Units, for one (1) year from the date of shipment from CM. The "Warranty Inception Date" shall be the date of original unit installation, or six (6) months from date of unit shipment from CM, whichever comes first.

To make a claim under this warranty, parts must be returned to CM in Oklahoma City, Oklahoma, freight prepaid, no later than ninety (90) days after the date of the failure of the part; if CM determines the part to be defective and within CM's Limited Express Warranty, CM shall, when such part has been either replaced or repaired, return such to a factory recognized distributor, dealer or service organization, F.O.B. CM, Oklahoma City, Oklahoma, freight prepaid. The warranty on any part repaired or replaced under warranty expires at the end of the original warranty period.

This Limited Express Warranty shall cover the labor incurred by CM authorized service personnel in connection with the installation of a new or repaired warranty part that is covered by this Limited Express Warranty only to the extent specifically set forth in the then existing labor allowance schedule provided by CM's Warranty Department and only as follows: (1) CM Units for five (5) years from the Warranty Inception Date; (2) Thermostats, auxiliary electric heaters and geothermal pumping modules built or sold by CM, when installed with CM Units, for five (5) years from the Warranty Inception Date. Actual Labor costs are not covered by this Limited Express Warranty to the extent they exceed the amount allowed under said allowance schedule; they are not specifically provided for in said allowance schedule, they are not the result of work performed by CM authorized service personnel, they are incurred in connection with a part not covered by this Limited Express Warranty, or they are incurred more than the time periods set forth in this paragraph after the Warranty Inception Date.

This warranty does not cover and does not apply to: (1) Air filters, fuses, refrigerant, fluids, oil; (2) Products relocated after initial installation; (3) Any portion or component of any system that is not supplied by CM, regardless of the cause of the failure of such portion or component; (4) Products on which the unit identification tags or labels have been removed or defaced; (5) Products on which payment to CM, or to the owner's seller or installing contractor, is in default; (6) Products subjected to improper or inadequate installation, maintenance, repair, wiring or voltage conditions; (7) Products subjected to accident, misuse, negligence, abuse, fire, flood, lightning, unauthorized alteration, misapplication, contaminated or corrosive air or liquid supply, operation at abnormal air or liquid temperatures or flow rates, or opening of the refrigerant circuit by unqualified personnel; (8) Mold, fungus or bacteria damages; (9) Corrosion or abrasion of the product; (10) Products supplied by others; (11) Products which have been operated in a manner contrary to CM's printed instructions; (12) Products which have insufficient performance as a result of improper system design or improper application, installation, or use of CM's products; or (13) Electricity or fuel costs, or any increases or unrealized savings in same, for any reason whatsoever.

This Limited Express Warranty provides the limited labor allowance coverage as set forth above. Otherwise, CM is not responsible for: (1) The costs of any fluids, refrigerant or system components supplied by others, or associated labor to repair or replace the same, which is incurred as a result of a defective part covered by CM's Limited Express Warranty; (2) The costs of labor, refrigerant, materials or service incurred in diagnosis and removal of the defective part, or in obtaining and replacing the new or repaired part; (3) Transportation costs of the defective part from the installation site to CM, or of the return of that part if not covered by CM's Limited Express Warranty; or (4) The costs of normal maintenance.

This Limited Express Warranty applies to CM Residential Class products ordered from CM on or after May 1, 2010 (this would generally include CM Units with serial numbers beginning with "N11 8" and higher), and is not retroactive to any products ordered from CM prior to May 1, 2010 (this would generally include CM Units with serial numbers beginning with "N117" and lower). If you are unsure if this Limited Express Warranty applies to the product you have purchased, contact CM at the phone number or address reflected below.

Limitation: This Limited Express Warranty is given in lieu of all other warranties. If, notwithstanding the disclaimers contained herein, it is determined that other warranties exist, any such express warranty, including without limitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited to the duration of the Limited Express Warranty.

LIMITATION OF REMEDIES

In the event of a breach of the Limited Express Warranty, CM will only be obligated at CM's option to repair the failed part or unit, or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If after written notice to CM's factory in Oklahoma City, Oklahoma of each defect, malfunction or other failure, and a reasonable number of attempts by CM to correct the defect, malfunction or other failure, and the remedy fails of its essential purpose, CM shall refund the purchase price paid to CM in exchange for the return of the sold good(s). Said refund shall be the maximum liability of CM. **THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR PURCHASER AGAINST CM FOR BREACH OF CONTRACT, FOR THE BREACH OF ANY WARRANTY OR FOR CM'S NEGLIGENCE OR IN STRICT LIABILITY.**

LIMITATION OF LIABILITY

CM shall have no liability for any damages if CM's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to: any war, civil unrest, government restrictions or restraints, strikes, or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, acts of God or any other reason beyond the sole control of CM. **CM EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE IN CONTRACT, FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, OR IN TORT, WHETHER FOR CM'S NEGLIGENCE OR AS STRICT LIABILITY.**

OBTAINING WARRANTY PERFORMANCE

Normally, the dealer or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any CM recognized distributor, dealer or service organization. If assistance is required in obtaining warranty performance, write or call:

Climate Master, Inc. • Customer Service • 7300 SW 44th Street • Oklahoma City, Oklahoma 73179 • (405) 745-6000 • e-service@climatemaster.com

NOTE: Some states or Canadian provinces do not allow limitations on how long an implied warranty lasts, or the limitation or exclusions of consequential or incidental damages, so the foregoing exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and from Canadian province to Canadian province.

Please refer to the CM Installation, Operation and Maintenance Manual for operating and maintenance instructions.

Rev.: 4/10
Part No.: RP851

Notes

Revision History

Date	Page #	Description
Nov. 19, 2012	Various	AXM Info. Added
May 2, 2012	7	'Return Air Opening' Added to Dimensional Drawing
Dec. 13, 2010	15, 16	Revised Installation Info. and ECM diagram
Sept 29, 2010	17	Electrical Data Updated
May 1, 2010	All	First Published

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The management system governing the manufacture of ClimateMaster's products is ISO 9001:2008 certified.

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